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Titolo dell'abstract

RECENT SEISMICITY (2000-2007) IN THE TIBURTINI-PRENESTINI MOUNTAINS REGION (LATIUM, ITALY)

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Parole chiave

seismicity

magnitude

focal mechanism

inversion method

fault

Abstract

A detailed knowledge of the seismicity distribution enables us to gain a better understanding of the recent tectonic evolution and the present-day state of stress of the Tiburtini and Prenestini Mountains region, whose seismic importance is related with the nearness to the town of Rome. It has been carried out an analysis of the seismicity of the region using the data recorded by the permanent stations belonging to the Italian National Seismic Network (RSNC) from 2000, and subsequently integrated with data of local seismic network from 2003 to 2007. The increase of the number of stations in the last years allow us to obtain better quality earthquake localization as before done. We have produced a large database of re-picked events collecting arrival times of P and S waves of local earthquakes with magnitude larger than 2.0, belonging to the 2000-2007 period.

The work is subdivided into three step. The first one consists in the determination of the VP/VS ratio using the modified Wadati method. In the second step we perform the analysis of the 1D velocity model that better approximates the structure of the crust in the studied area using the VELEST code (Kissling et al., 1995). Finally, we have the step with earthquake locations and focal mechanisms computation using the first motion polarities method. Fault plane solutions are selected following the two quality factors defined by the FPFIT code (Reasenber and Oppenheimer, 1985). For the determination of the regional stress field it is used the focal mechanism inversion method elaborated by Gephart and Forsyth (1984). These results are compared with those available from the historical seismicity that struck the region under study.

References

Gephart, J. and W. Forsyth (1984): An improved method for determining the regional stress tensor using earthquake focal mechanism data: application to the San Fernando earthquake sequence, J. Geophys. Res., 89, 9305-9320.

Kissling, E., W. L. Ellsworth, D. Eberhart-Phillips and U. Kradolfer (1994): Initial reference models in local earthquake tomography, J. Geophys. Res., 99, 19635-19646.

Reasenber, P. and Oppenheimer (1985): FPFIT, FPLOT and FPPAGE: FORTRAN computer programs for calculating and displaying earthquake fault-plane solutions, U.S. Geol. Surv. Open-File Rep. 85-739.

Modalita' di presentazione

Orale

Scelta della sessione

1ª OPZIONE T40 - Neotettonica e sismotettonica: metodi di indagine ed applicazioni all'area italiana e mediterranea

2ª OPZIONE T38 - Modalità di crescita delle faglie e implicazioni per la valutazione della pericolosità sismica